

BIBLIOGRAPHICAL NOTICES.

Fasciculi Malayensis: Zoology. Part II. 1903.

Longmans, Green, & Co.

THE value of the work accomplished by Messrs. Annandale and Robinson during their expedition to Perak and the Siamese Malay States in 1901-2 may be measured by the admirable series of memoirs thereon which are now passing through the press.

The second part, dealing with the zoological results of the expedition, embraces papers on the non-operculate Mollusca; Rhynchota; Coleoptera; and the structure and mechanism of the funnel surrounding the mouth of the tadpole of *Megalophrys montana*; Marine and Freshwater Fishes; and a tooth of *Elephas namadicus*.

The bulk of these papers are of a purely technical character. The most interesting perhaps is that on the marine fishes, inasmuch as it embraces some curious facts concerning the justly celebrated "walking-fishes," *Periophthalmus* and *Boleophthalmus*.

A newly discovered species of the first-named genus, *P. phya*, proves to be remarkable in more ways than one, but chiefly on account of the fact that it constructs a more or less permanent burrow, used either as a refuge when threatened or as a shelter in bad weather; it may possibly also serve as a nest, but about this there is some doubt.

The main entrance to this burrow lies in a pool of water, which is maintained when the tide sinks (for it is always made between tide-marks) by a rampart of mud some 5 or 6 inches high and a foot and a half in diameter. Outside this rampart a number of small holes are always found, and these lead into the central shaft. When alarmed the fishes dive at once into one of the outer shafts or else mount the rampart, and after a careful survey either pitch headlong into the central pool or resume their hunting.

It would have been well if more accounts of this kind had been included in the volume; as a rule, however, little more than a list of species of each of the groups collected has been given.

The two coloured plates of Rhynchota certainly represent the acme of the three-colour process and are really splendidly rendered.

The third part of this volume will, we believe, be published shortly.

Trouessart's 'Catalogue of Mammals.'

Catalogus Mammalium, tam Viventium quam Fossilium. By E. L. TROUESSART. *Quinquennale Supplementum, Fasciculus i.* Berlin: Friedländer & Son, 1904. Pp. iv + 288. Price 12s.

THE papers on Mammalia which have been published in the columns of the 'Annals' during the last few years are alone sufficient to serve as an indication of the great progress which has been made in the detailed study of that group, and the numerous changes in nomenclature which have been advocated, during the period in question. Any systematic work on Mammals published

half a dozen years or so ago is indeed, if all these proposed changes be adopted, practically obsolete, while all lists of species of that date are hopelessly in arrears. In these circumstances, it is very satisfactory to find that Dr. Trouessart has been enabled to bring his invaluable 'Catalogue' up to date by the issue of what he calls a supplement. As a matter of fact, this is practically a new edition of that work, with the exception that the original references to genera and species which retain their old titles are not repeated, the student being referred back to the second edition of the 'Catalogue' itself. In some respects this plan is a decided disadvantage, since it renders it necessary for every student to have access to the original work, which in due course will probably be out of print, whereas if references to the place of publication of genera and species had been given in the supplement, the latter would have sufficed for all purposes. Doubtless, however, the large additional expense thus involved would have rendered this plan impracticable.

The present portion of the re-issue comprises the four orders Primates, Chiroptera, Insectivora, and Pinnipedia (expanded into six by the author); and an idea of the number of additions to the species in these groups since the date of the second edition of the 'Catalogue' may be gleaned from the statement that (apart from subspecies) the first of these now comprises 290 against 255. In cases where names are preoccupied or otherwise unavailable, the author has not hesitated to replace them by new ones; but in thus substituting *Leptocebus* for *Semnocebus*, we note that he has been anticipated by Mr. Palmer, who suggested *Lophocebus*. A name is regarded as preoccupied even when there is some difference in the mode of spelling or in the form of the termination, as in the case of *Megaloglossus* and *Megaloglossa*; and in this we think he is right. Whether, however, naturalists will agree with him in accepting all the emendations and changes that have recently been proposed in mammalian nomenclature (even when they have been suggested in our own columns) remains to be seen. Generic terms are for the most part employed in a wide sense, many of the so-called genera of modern zoology being relegated to subgeneric rank, as in the case of the more typical Bats, where we find *Pterygistes* and *Pipistrellus* regarded as groups of *Vespertilio*.

When complete, the 'Supplement' will be invaluable to naturalists; and we may wish the author health, strength, and energy to bring his laborious and self-imposed task to a satisfactory conclusion.—R. L.

International Catalogue of Scientific Literature. Second Annual Issue. R. *Bacteriology*. London: Harrison & Sons. 1903 (October). Price 21s.

THIS great catalogue should prove of considerable value to those engaged in research. The present volume (*Bacteriology*) is divided into two portions—the first an authors' catalogue, in which works and papers are catalogued under the names of the authors, alphabetically arranged; the second a subject catalogue, authors' names

again appearing alphabetically under each subject, and cross-references between the two portions of the book are also given.

Two criticisms of the work might be made. Beyond the statement that it is the second annual issue and the date of publication (1903), no indication is given of the period that is covered; presumably it is the year 1902. Secondly, in the subject catalogue it would be a great convenience if the subject dealt with were briefly indicated in headings to the pages. As it is, several pages may have to be turned over before arriving at the subject heading. It is true that the last objection is perhaps removed by an excellent index.

The Old Riddle and the Newest Answer. By JOHN GERARD, S.J., F.L.S. London: Longmans, Green, & Co. 1904.

THE object of this book is to show not only that Haeckel, in his 'Riddle of the Universe,' claimed more for the theory of evolution than is warranted by the facts—and no one doubts this,—but that this theory, when it comes to be closely and carefully examined, proves absolutely valueless as an explanation of the origin and development of life upon the earth. It is, in short, a thing vainly invented, and grounded upon no warranty!

That the author should have arrived at a conclusion so extraordinary in the face of the evidence before him is inexplicable.

The case for the prosecution is conducted with much skill. Huxley's evidence is made again and again to tell against the theory for which he worked so hard. The evidence in other cases is of very questionable value. What reliance, for example, can be placed on the opinion of an eminent botanist as touching the evolution of the horse?

Many times in the pages of this book the author has presented the evolution theory, or the Darwinian hypothesis of "natural selection," in a guise which shows clearly that he has failed to appreciate not only the significance of the facts involved, but also the essential principles of these hypotheses.

The argument for the evolution theory from the evidence of geographical distribution rests on a quotation from the 'North British Review' for 1867! The marvellous series of Proboscidean remains in the British Museum afford overwhelming testimony to the theory of evolution; and their evidence in this connexion was pointed out, only a few months ago, in a course of lectures by Prof. E. Ray Lankester. The author makes but a passing reference to these, and then passes immediately afterwards, without further comment, to discuss the views of Gaudry on the Mastodon and Dinotheria!

Of the Proboscidea the author, in an earlier part of his book, says:—"These, like other families, to judge from the evidence we have, began with the biggest representatives . . ." Surely the word "biggest" should read "smallest"!

But we have said enough. We close this volume with a sense of disappointment and regret. The author seems to have undertaken this task with the conviction that the theory of evolution must be

discredited at all costs, as subversive alike of religion and of morals; and in accordance with this view he has had recourse to desperate measures, which are to be deplored—the more so since they are unnecessary, for the truth can hurt neither if they themselves are true.

We say, without fear of contradiction, that the theory of evolution is unassailable. It is as well founded as the law of gravitation, as irresistible as the proof of the rotundity of the earth—and there are some who doubt this last fact, even in these days!

W. P. PYCRAFT.

Forest Conditions of the San Francisco Mountains Forest Reserve, Arizona. By J. E. LEIBERG, TH. F. RIXON, and A. DODWELL. With Introduction by F. G. PLUMMER. Series H, no. 7. Pages 95, with seven maps and plates. 4to. Government Printing Office, Washington. 1904.

Forest Conditions in the Black Mesa Forest Reserve, Arizona. Prepared by F. G. PLUMMER from Notes by TH. F. RIXON and A. DODWELL. Series H, no. 8. Pages 62, with seven maps and plates. 4to. Government Printing Office, Washington. 1904.

THE forest-conditions of definite regions in the United States are especially described and illustrated in several papers ("Series H. Forestry") of the U.S. Geological Survey Annual Reports and in seven separate memoirs (1902-4). The noted details are clearly and fully described, and good plates of maps, plans, views of mountain and prairie, of forests, woods, isolated timber-trees, and "stands" of special trees are abundantly supplied.

After having defined the limits of the area to be noticed, the authors give an account of its superficial features, its soil, drainage, water-supply, agricultural and mining aspects, if any. The timber is then considered, 1st, as to the kinds of trees (in memoir "H 7" 12 conifers are enumerated and 10 broad-leaved species; in "H 8," 9 and 6 respectively); and, 2nd, the zones they occupy in the area, variable according to height and exposure to favourable conditions or otherwise. Also as to the estimated quantity and commercial value of the timber which the best sorts of the trees may supply, and the quantity of fuel the poor kinds may furnish.

The description of the several kinds of trees follows, as to their general habit and style of growth, their merchantable condition, and the calculable value of forest-zone and timber-belt for fuel, fencing material, and mill-timber (some is used largely for railways and mines). Some notes are also given about the deciduous or broad-leaved trees and their relative value in different ways.

Of course, the forests have been destroyed by the axe to a great extent; but, besides cutting, other agencies of destruction have been the following:—grazing, mainly flocks of sheep trampling and eating the seedlings, and fire from hunters' and shepherds' camps, railway sparks, and especially lightning.

At page 17 of "H, no. 7" it is stated:—"Among the coniferous species the yellow-pine claims first rank, constituting over 99 per cent. of the merchantable timber and about 90 per cent. of the total

forest. It is followed by one-seed juniper and piñon. The other coniferous trees form individually but small percentages of the total growth, and are confined to more or less circumscribed tracts. Among the broad-leaved species, aspen takes first rank, but is closely followed by the oaks. The rest of the species of this class consists of isolated trees or small groups scattered on the breaks to the larger canyons."

And at page 18 of the same no. 7 Forestry memoir:—"The aborescent growth in the Reserve falls naturally into three chief types or divisions, with one which is intermediate or transitional. These types in their altitudinal extensions, and in the species which correspond in a general way to the different ratios of precipitation which prevail over the various districts in which they are found. Yet here, as elsewhere, the soil-moisture, not always closely proportioned to the annual precipitation, comes into play, and limits the range of the different types, or extends it into areas where otherwise they would not occur."

At pages 30 and 31 of "no. 8" both the natural retention and the "run-off" of rain-water in a forested area are carefully considered, with true scientific application of the topographical evidences.

The Geology and Ore-deposits of the Bisbee Quadrangle, Arizona.

By FREDERICK LESLIE RANSOME. 168 pages. 4to. With 29 plates and 5 text-figs. Government Printing Office, Washington, 1904.

THIS memoir is the "21st Professional Paper" of the United States Geological Survey, and, as usual with that series, contains a trustworthy and complete description of a definite region as to its production of materials useful for arts and manufactures, and its surface-features, geological structure, and its palæontology, all carefully observed, noted, and illustrated by members of the Survey, under the superintendence of the Director, C. D. Walcott. The volume before us treats of an important copper district in Arizona, the territory lying south of Utah, near the mouth of the great Colorado River, and forming part of one of the great metalliferous regions of N.W. America. The strata of the country belong to the Precambrian, Cambrian, Devonian, Carboniferous, and Cretaceous formations, and there are superficial beds of Quaternary age. Some of the older strata have been more or less metamorphosed by contact with the intrusive granite and granite-porphry of post-Carboniferous date. There are also dykes of later date and less importance, probably doleritic, but much altered.

This work, by Mr. F. L. Ransome and his colleagues, is richly illustrated with good geological maps, views, and sections, and with characteristic fossils, also plans and details of mining. The distribution, the genesis, and condition of the ores, both of primary and secondary origin, are considered, the latter having been enriched by the natural leaching of copper-salts from the pyrites lying at a higher level. The limonite and kaolin, met with in local abundance,

are also noticed. The progress of mining work in the Bisbee Quadrangle from about 1873 to 1899 is given as having been productive of about 380,113,851 pounds of "black" (crude) copper.

The lucid and scientific descriptions of local features, facts, and conditions render this volume a valuable adjunct to mining literature, and its value is enhanced by a somewhat sanguine but quite cautious treatment of the probabilities of good pyrites being found at certain localities and levels in neighbouring rock-formations.

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

June 22nd, 1904.—J. E. Marr, Sc.D., F.R.S.,
President, in the Chair.

The following communication was read:—

'The Tertiary Fossils of Somaliland, as represented in the British Museum (Natural Museum).' By Richard Bullen Newton, Esq., F.G.S.

Since the publication, in 1900, of Prof. Gregory's paper, founded on specimens in the Natural History Museum, mostly collected and presented by Mrs. Lort Phillips, the National Collection has been enriched by further series of fossils: the Donaldson-Smith Collection, and one presented by Major R. G. Edwards Leckie. The new material is, generally speaking, better preserved than that previously dealt with. The large Lucinidæ and specimens of *Campanile* (previously considered as *Nerinea*) are very typical of Eocene rocks generally, and they agree with the foraminifera in the Somaliland Limestones in supporting the reference of these rocks to this period. The matrices of these limestones correspond with those surrounding the corals described by Prof. Gregory as belonging to the Uradu and Dobar Limestones. Two limestones seem to be represented in the collections—an upper, massive and cherty, often coloured reddish-brown externally; and a lower, of less cherty character and lighter colour. The limestones appear to be capable of correlation with those of the south-eastern corner of Arabia, as well as with those of Sind and Cutch; they can also be traced in connection with the Eocene areas of Egypt and other regions of North Africa, through Europe to the Paris Basin, and so to the Bracklesham Beds of England. The new collections contain some older fossils, but they are not considered in the present paper.

A review of the literature of the subject is given, and the Author then proceeds to the description of species of gasteropods, lamelli-branches, echinoids, and corals. Six new species are described and named, and sixteen species or varieties described but not named. An account of the foraminiferal structures of the limestones follows, and the paper closes with a list of the known Tertiary fossils from Somaliland.